Project WILD
and the Virginia
Standards of Learning for Science

The Project WILD Activity Guides have been correlated to the 2003 Virginia Standards of Learning objectives for Science. These correlations are to those activities that directly match the Science SOLs as they are written; extensions, adaptations or secondary objectives are not included. We realize that many additional activities will also assist a teacher's effort to meet SOL objectives in science, math and language arts. Review the activities in your guide along with the topic, subject, and skills indexes found in the appendices to create a comprehensive correlation that will assist you in teaching the standards.

Topics such as food webs may be repeated in the standards at different grade levels and build upon knowledge learned at an earlier grade. We have listed activities where they would best meet the student's skill level and the SOL. You are encouraged to adapt activities to the abilities of your students.

Within the Science SOLs, the first objective or **".1"** standard deals with basic Science process skills such as classification or predicting. The numbers of Project WILD activities that meet the **.1** objectives are too numerous to list. Teachers are referred to the *Skills Index* in the back of their Project WILD Activity Guides for activities that would assist in teaching any given skill.

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This correlation has been excerpted from the correlation of Project WILD, Project WET and Project Learning Tree to the Science Standards of Learning.

PROJECT WILD CORRELATION TO
VIRGINIA'S SCIENCE STANDARDS OF LEARNING

Kindergarten

K.2 Students will investigate and understand that humans have senses that allow one to seek, find, take in, and react or respond to information in order to learn about one's surroundings. Key concepts include:

a. five senses and corresponding sensing organ (taste-tongue, touch-skin, smell-nose, hearing-ears, and sight-eyes); and
b. sensory descriptors (sweet, sour, bitter, salty, rough/smooth, hard/soft, cold, warm, hot, loud/soft, high/low, bright/dull)

Project WILD K-12 Guide
Learning to Look – Looking to See

K.6 The student will investigate and understand basic needs and life processes of plants and animals. Key concepts include:

a. living things change as they grow and need food, water, and air to survive;
b. plants and animals live and die (go through a life cycle);
c. offspring of plants and animals are similar but not identical to their parents and one another.

Project WILD K-12 Guide
Everybody Needs a Home
What's That Habitat

Project WILD Aquatic Guide
Are You Me?

K.8 The student will investigate and understand simple patterns in his/her daily life. Key concepts include

a. weather observations;
b. the shapes and forms of many common natural objects including seeds, cones, and leaves;
c. animal and plant growth; and
d. home and school routines.

Project WILD Aquatic Guide
Are You Me?

K.10 The student will investigate and understand that materials can be reused, recycled and conserved. Key concepts include

a. materials and objects can be used over and over again;
b. everyday materials can be recycled; and
c. water and energy conservation at home and in school helps preserve resources for future use.

Project WILD Aquatic Guide
Plastic Jellyfish

First Grade

1.4 The student will investigate and understand that plants have life needs and functional parts and can be classified according to certain characteristics. Key concepts include:

a. needs (food, air water, light, and a place to grow);
b. parts (seeds, roots, stems, leaves, blossom, fruit); and
c. characteristics: edible/non-edible, flowering/non-flowering, evergreen/deciduous.

Project WILD Aquatic Guide
Water Plant Art

1.5 The student will investigate and understand that animals, including people, have life needs and specific physical characteristics and can be classified according to certain characteristics. Key concepts include:

a. life needs (air, food, water, and a suitable place to live);
b. physical characteristics (body coverings, body shape, appendages, and methods of movement);
c. characteristics (wild/tame, water homes/land homes).

Project WILD K-12 Guide
What's Wild?
Color Crazy
What Bear Goes Where?
Beautiful Basics
Grasshopper Gravity

Project WILD Aquatic Guide
Fashion a Fish

1.7 The student will investigate and understand the relationship of seasonal change and weather to the activities and life processes of plants and animals. Key concepts include:

a. how temperature, light, and precipitation bring about changes in plants (growth, budding, falling leaves, wilting);
b. animals (behaviors, hibernation, migration, body covering, and habitat);
c. people (dress, recreation, work).

Project WILD K-12 Guide
The Thicket Game
Make a Coat

1.8 The student will investigate and understand that natural resources are limited. Key concepts include

a. identification of natural resources (plants and animals, water, air, land, minerals, forests and soil);
b. factors that affect air and water quality; and
c. recycling, reusing and reducing consumption of natural resources.

Project WILD K-12 Guide

What's Wild
Learning to Look, Looking to See

Second Grade

2.4 The student will investigate and understand that plants and animals go through a series of orderly changes in their life cycles. Key concepts include:

a. some animals (frogs and butterflies) go through distinct stages during their lives while others generally resemble their parents;
b. flowering plants undergo many changes from the formation of the flower to the development of the fruit.

Project WILD Aquatic Guide

Are You Me?
Hooks and Ladders

2.5 The student will investigate and understand that living things are part of a system. Key concepts include:

a. living organisms are interdependent with their living and nonliving surroundings;
b. habitats change over time due to many influences.

Project WILD K-12 Guide

Wildlife is Everywhere
What Bear Goes Where?
Forest In a Jar

Project WILD Aquatic Guide

Puddle Wonders
Marsh Munchers

2.7 The student will investigate and understand that weather and seasonal changes affect plants, animals, and their surroundings. Key concepts include

- effects on growth and behavior of living things (migration, hibernation, camouflage, adaptation, dormancy); and
- weathering and erosion of the land surface

Project WILD K-12 Guide

Color Crazy
Surprise Terrarium
What Bear Goes Where

Project WILD Aquatic Guide

Silt: A Dirty Word

2.8 The student will investigate and understand that plants produce oxygen and food, are a source of useful products, and provide benefits in nature. Key concepts include:

a. important plant products (fiber, cotton, oil, spices, lumber, rubber, medicines, and paper);
b. the availability of plant products affects the development of a geographic area;
c. plants provide homes and food for many animals and prevent soil from washing away.

Project WILD K-12 Guide
What's for Dinner?

Project WILD Aquatic Guide
Water We Eating?

Third Grade

3.4 The student will investigate and understand that behavioral and physical adaptations allow animals to respond to life needs. Key concepts include:

a. methods of gathering and storing food, finding shelter, defending themselves, and rearing young;
b. hibernation, migration, camouflage, mimicry, instinct, and learned behavior.

Project WILD K-12 Guide
Ants on a Twig
Seeing is Believing
Surprise Terrarium
Adaptation Artistry

Project WILD Aquatic Guide
Marsh Munchers
Fashion A Fish
Sockeye Scents

3.5 The student will investigate and understand relationships among organisms in aquatic and terrestrial food chains. Key concepts include:

a. producer, consumer, decomposer;
b. herbivore, carnivore, omnivore;
c. predator-prey.

Project WILD K-12 Guide
Thicket Game
Owl Pellets
Quick Frozen Critters

Project WILD Aquatic Guide
Marsh Munchers

3.6 The student will investigate and understand that environments support a diversity of plants and animals that share limited resources. Key concepts include:

a. water-related environments (pond, marshland, swamp, stream, river, and ocean environments);
b. dry-land environments (desert, grassland, rainforest, and forest environments);
c. population and community.

Project WILD K-12 Guide

Habitracks
Wildlife is Everywhere
How Many Bears Can Live in This Forest
Graphananimal
Habitrekking (indirect)

Project WILD Aquatic Guide

Water Plant Art
Marsh Munchers

3.9 The student will investigate and understand the water cycle and its relationship to life on Earth. Key concepts include

a. the energy from the sun drives the water cycle;
b. processes involved in the water cycle (evaporation, condensation, precipitation);
c. water is essential for living things; and
d. water supply and water conservation.

Project WILD Aquatic Guide

How Wet is Our Planet?
Aqua Words (indirect)

3.10 The student will investigate and understand that natural events and human influences can affect the survival of species. Key concepts include:

a. the interdependency of plants and animals;
b. human effects on the quality of air, water, and habitat;
c. the effects of fire, flood, disease, erosion, on organisms; and
d. conservation and resource renewal,

Project WILD K-12 Guide

Environmental Barometer
Playing Lightly On The Earth

Project WILD Aquatic Guide

Deadly Waters

Fourth Grade

4.5 The student will investigate and understand how plants and animals in an ecosystem interact with one another and the nonliving environment. Key concepts include:

a. behavioral and structural adaptations;
b. organization of communities;
c. flow of energy through food webs;
d. habitats and niches;
e. life cycles;
f. influence of human activity on ecosystems.

Project WILD K-12 Guide

Grasshopper Gravity
Microtrek Treasure Hunt
Quick Frozen Critters
Owl Pellets
Habitat Rummy
Classroom Carrying Capacity (indirect)

Project WILD Aquatic Guide

Designing a Habitat
Edge of Home

4.6 The students will investigate and understand how weather conditions and phenomena occur and can be predicted. Key concepts include:

a. weather measurements and meteorological tools (air pressure-barometer, wind speed-anemometer, rainfall-rain gauge, and temperature-thermometer); and
b. weather phenomena (fronts, clouds, and storms).

Project WILD K-12 Guide

Stormy Weather

4.8 The student will investigate and understand important Virginia natural resources. Key concepts include:

a. watershed and water resources;
b. animals and plants;
c. minerals, rocks, ores, and energy sources;
d. forests, soil, and land.

Project WILD K-12 Guide

Who Lives Here
Animal Charades

Project WILD Aquatic Guide

Fishy Who's Who

Fifth Grade

5.5 The student will investigate and understand that organisms are made of cells and have distinguishing characteristics. Key concepts include:

a. basic cell structures and functions;
b. kingdoms of living things;
c. vascular and nonvascular plants; and
d. vertebrates and invertebrates.

Project WILD K-12 Guide
Grasshopper Gravity
Interview a Spider(indirect)

Project WILD Aquatic Guide
Micro Odyssey

5.6 The student will investigate and understand characteristics of the ocean environment. Key concepts include:

a. geological characteristics (continental shelf, slope, rise);
b. physical characteristics (depth, salinity, major currents); and
c. biological characteristics (ecosystems).

Project WILD K-12 Guide
Who Fits Here? (indirect)

Project WILD Aquatic Guide
Marsh Munchers
Turtle Hurdles
Net Gain, Net Effect

Sixth Grade

6.7 The student will investigate and understand the natural processes and human interactions that affect watershed systems. Key concepts include

a. the health of ecosystems and the abiotic factors of a watershed;
b. the location and structure of Virginia's regional watershed systems;
c. divides, tributaries, river systems, and river and stream processes;
d. wetlands;
e. estuaries;
f. major conservation, health, and safety issues associated with watersheds; and
g. water monitoring and analysis using field equipment including hand-held technology.

Project WILD Aquatic Guide
Where Does Water Run?
Watershed
Marsh Munchers
Wetland Metaphors

6.9 The student will investigate and understand public policy decisions relating to the environment. Key concepts include

a. management of renewable resources (water, air, soil, plant life, animal life);
b. management of nonrenewable resources (coal, oil, natural gas, nuclear power, mineral resources);
c. the mitigation of land-use and environmental hazards through preventive measures; and
d. cost/benefit tradeoffs in conservation policies.

Project WILD K-12 Guide

Flip the Switch for Wildlife
Water's Going On?!
Deadly Links
Sustainability: Then, Now, Later
Pay to Play

Project WILD Aquatic Guide

Where Have All the Salmon Gone?
Dragonfly Pond

Life Science

LS.4 The student will investigate and understand that the basic needs of organisms must be met in order to carry out life processes. Key concepts include:

a. plant needs (light and energy sources, water, gases, nutrients);
b. animal needs (food, water, gases, shelter, space);
c. factors that influence life processes.

Project WILD K-12 Guide

Oh, Deer
Habitrekking
Urban Nature Search
My Kingdom for a Shelter
Habitat Lap Sit
How Many Bear (indirect)

Project WILD Aquatic Guide

Designing a Habitat

LS.5 The student will investigate and understand how organisms can be classified. Key concepts include

a. distinguishing characteristics among kingdoms of organisms;
b. distinguishing characteristics of major animal and plant phyla; and
c. the characteristics of the species.

Project WILD K-12 Guide

Adaptation Artistry
Tracks (indirect)

Project WILD Aquatic Guide

Micro Odyssey
Fashion a Fish

LS.7 The student will investigate and understand that organisms within an ecosystem are dependent on one another and on nonliving components of the environment. Key concepts include:

a. the carbon, water, and nitrogen cycles;
b. interactions resulting in a flow of energy and matter throughout the system;
c. complex relationships within terrestrial, freshwater, and marine ecosystems; and
d. energy flow in food webs and energy pyramids.

Project WILD K-12 Guide

Eco Enrichers
Which Niche?
Who Fits Here?

Project WILD Aquatic Guide

Water Canaries
The Edge of Home
Blue-Ribbon Niche

LS.8 The student will investigate and understand that interactions exist among members of a population. Key concepts include:

a. competition, cooperation, social hierarchy, territorial imperative;
b. influence of behavior on population interactions.

Project WILD K-12 Guide

Carrying Capacity
Muskox Maneuvers
Ants On A Twig

LS.9 The student will investigate and understand interactions among populations in a biological community. Key concepts include:

a. the relationship among producers, consumers, and decomposers in food webs;
b. the relationship of predators and prey;
c. competition and cooperation;
d. symbiotic relationships; and
e. niches;

Project WILD K-12 Guide

Good Buddies
Ecosystem Facelift

Project WILD Aquatic Guide

Blue Ribbon Niche

LS.10 The student will investigate and understand how organisms adapt to biotic and abiotic factors in a biome. Key concepts include:

a. differences between ecosystems and biomes;
b. characteristics of land, marine, and freshwater biomes;
c. adaptations that enable organisms to survive within a specific biome.

Project WILD K-12 Guide

Who Fits Here
Which Niche?

LS.11 The student will investigate and understand that ecosystems, communities, populations, and organisms are dynamic and change over time (daily, seasonal, and long term). Key concepts include:

a. phototropism, hibernation, and dormancy;
b. factors that increase or decrease population size; and
c. eutrophication, climate change, and catastrophic disturbances.

Project WILD K-12 Guide

Pond Succession
Checks and Balances
Carrying Capacity
Rainfall and the Forest
Forest in a Jar

Project WILD Aquatic Guide

Migration Headache
The Glass Menagerie

LS.12 The student will investigate and understand the relationships between ecosystem dynamics and human activity. Key concepts include:

a. food production and harvest;
b. change in habitat size, quality, and structure;
c. change in species competition;
d. population disturbances and factors that threaten and enhance species survival;
e. environmental issues (water supply, air quality, energy production, and waste management).

Project WILD K-12 Guide

Too Close for Comfort
Riparian Zone
Shrinking Habitat
Deer Crossing
Changing the Land
Sustainability
Pay to Play

Project WILD Aquatic Guide

Aquatic Roots
Net Gain, Net Effect
Where Have All the Salmon Gone?

LS.13 The student will investigate and understand that organisms reproduce and transmit genetic information to new generations. Key concepts include

a. the role of DNA;
b. the function of genes and chromosomes;
c. genotypes and phenotypes;
d. factors affecting the expression of traits;
e. characteristics that can and cannot be inherited;
f. genetic engineering and its applications; and
g. historical contributions and significance of discoveries related to genetics.

Project WILD K-12 Guide

Bottleneck Genes

LS.14 The student will investigate and understand that organisms change over time. Key concepts include:

a. the relationships of mutation, adaptation, natural selection, and extinction;
b. evidence of evolution of different species in the fossil record; and
c. how environmental influences, as well as genetic variation, can lead to diversity of organisms.

Project WILD K-12 Guide

Here Today, Gone Tomorrow
Bottleneck Genes
Back from the Brink (indirect)

Earth Science

ES.7 The student will investigate and understand the differences between renewable and nonrenewable resources. Key concepts include:

a. fossil fuels, minerals, rocks, water, and vegetation;
b. advantages and disadvantages of various energy sources;
c. resources found in Virginia;
d. making informed judgments related to resource use and its effects on Earth systems; and
e. environmental costs and benefits.

Project WILD K-12 Guide

Sustainability: Then, Now, Later
Flip the Switch for Wildlife

Project WILD Aquatic Guide

Dragonfly Pond
To Dam or Not to Dam

ES.9 The student will investigate and understand how freshwater resources are influenced by geologic processes and the activities of humans. Key concepts include

a) processes of soil development;
b) development of karst topography;
c) identification of groundwater zones including water table, zone of saturation, and zone of aeration;
d) identification of other sources of fresh water including rivers, springs, and aquifers with reference to the hydrologic cycle;
e) dependence on freshwater resources and the effects of human usage on water quality; and
f) identification of the major watershed systems in Virginia including the Chesapeake Bay and its tributaries.

Project WILD K-12 Guide

Stormy Weather (indirect)
Rainfall in the Forest (indirect)

Project WILD Aquatic Guide

Alice in Waterland
Where Does Water Run?
Watershed

Biological Science

Bio. 6 The student will investigate and understand common mechanisms of inheritance and protein synthesis. Key concepts include

a. cell division;
b. sex cell formation;
c. cell specialization
d. prediction of inheritance of traits based on the laws of heredity;
e. effects of genetic recombination and mutation;
f. events involved in the construction of proteins; and
g. exploration of the impact of DNA technologies

Project WILD K-12 Guide

Bottleneck Genes

Bio. 8 The student will investigate and understand how populations change over time. Key concepts include

a. examining evidence found in fossil records;
b. investigating how variation of traits, reproductive strategies, and environmental pressures impact on the survival of populations
c. recognizing how adaptations lead to natural selection; and
d. exploring how new species emerge.

Project WILD K-12 Guide

Back from the Brink
Bottleneck Genes

Project WILD Aquatic Guide

Eat and Glow (indirect)

Bio. 9 The student will investigate and understand dynamic equilibria within populations, communities, and ecosystems. Key concepts include

a. interactions within and among populations including carrying capacities,
b. limiting factors and growth curves;
c. nutrient cycling with energy flow through ecosystems;
d. succession patterns in ecosystems;
e. the effects of natural events and human influences on ecosystems; and
f. analysis of local ecosystems

Project WILD K-12 Guide

Turkey Trouble
Carrying Capacity
Checks and Balances

Project WILD Aquatic Guide

Migration Headaches
Where Have All The Salmon Gone